1. Solve the equation for x and choose the interval that contains x (if it exists).

$$10 = \sqrt[5]{\frac{22}{e^{8x}}}$$

A. $x \in [-0.9, -0.18]$

B. $x \in [-7.57, -5.58]$

C. $x \in [-1.85, -0.73]$

D. There is no Real solution to the equation.

E. None of the above.

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2. Which of the following intervals describes the Range of the function below?

$$f(x) = \log_2(x - 3) + 2$$

A. $(-\infty, a), a \in [1.23, 2.99]$

B. $[a, \infty), a \in [2.99, 5.41]$

C. $[a, \infty), a \in [-4.36, -2.85]$

D. $(-\infty, a), a \in [-2.45, -1.86]$

E. $(-\infty, \infty)$

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3. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$5^{-5x-4} = 27^{-3x+3}$$

A. $x \in [8.87, 9.87]$

B. $x \in [3.8, 5.8]$

C. $x \in [-3.5, -2.5]$

D. $x \in [-12.16, -7.16]$

E. There is no Real solution to the equation.

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4. Which of the following intervals describes the Domain of the function below?

$$f(x) = e^{x-3} - 5$$

A. $(-\infty, a], a \in [-5, -3]$

B. $(-\infty, a), a \in [-5, -3]$

C. $[a, \infty), a \in [2, 12]$

D. $(a, \infty), a \in [2, 12]$

E. $(-\infty, \infty)$

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5. Solve the equation for x and choose the interval that contains x (if it exists).

$$12 = \sqrt[3]{\frac{24}{e^{6x}}}$$

A. $x \in [-6.68, -6.49]$

B. $x \in [-0.52, 0.11]$

C. $x \in [0.53, 1.91]$

D. There is no Real solution to the equation.

E. None of the above.

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6. Which of the following intervals describes the Range of the function below?

$$f(x) = \log_2(x - 8) - 5$$

A. $(-\infty, a), a \in [1.4, 5.1]$

B. $[a, \infty), a \in [7.8, 10.8]$

C. $(-\infty, a), a \in [-7.6, -3.9]$

D. $[a, \infty), a \in [-8.6, -7.7]$

E. $(-\infty, \infty)$

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7. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_4(3x+6)+4=3$$

A. $x \in [-1.93, -1.85]$

B. $x \in [-1.68, -1.07]$

C. $x \in [19.2, 20.36]$

D. $x \in [2.25, 2.53]$

E. There is no Real solution to the equation.

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8. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$3^{4x-2}=125^{2x+2}$$

A. $x \in [-3.5, -1.3]$

B. $x \in [3.8, 7.3]$

C. $x \in [-1.6, 0.1]$

D. $x \in [1.5, 3]$

E. There is no Real solution to the equation.

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9. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_3(2x+5)+6=3$$

A. $x \in [-23, -13]$

B. $x \in [-7.48, 0.52]$

C. $x \in [11, 20]$

D. $x \in [-11, -4]$

E. There is no Real solution to the equation.

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10. Which of the following intervals describes the Domain of the function below?

$$f(x) = -e^{x-2} - 6$$

A. $[a, \infty), a \in [5, 13]$

B. $(a, \infty), a \in [5, 13]$

C. $(-\infty, a), a \in [-7, -5]$

D. $(-\infty, a], a \in [-7, -5]$

E. $(-\infty, \infty)$